



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
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February 12, 2009

Mr. John T. Conway  
Senior Vice President-Generation  
& Chief Nuclear Officer  
Pacific Gas and Electric Company  
P.O. Box 3  
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Avila Beach, California 93424

SUBJECT: NRC INSPECTION REPORT 050-00133/09-001

Dear Mr. Conway:

This refers to the inspection conducted on January 12-15, 2009, at the Humboldt Bay Power Plant, Unit 3 facility. This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

This inspection consisted of a routine inspection of decommissioning activities and included a confirmatory survey of the area where the new generation plant will be constructed. The enclosed report presents the results of this inspection. In summary, the inspector determined that you were conducting decommissioning activities in compliance with regulatory and license requirements.

During the inspection, representatives from Oak Ridge Institute for Science and Education (ORISE) conducted confirmatory surveys in the new generation plant area. The confirmatory surveys included ambient gamma radiation scan surveys and soil sampling. The results of the survey were not available at the end of the inspection period. The results will be presented to you at a later date under separate correspondence.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC's Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Should you have any questions concerning this inspection, please contact Mr. Robert Evans, Senior Health Physicist, at (817) 860-8234, or the undersigned at (817) 860-8197.

Sincerely,

*/RA/*

Jack E. Whitten, Chief  
Nuclear Materials Safety Branch B

Docket No.: 050-00133  
License No.: DPR-7

Enclosure:  
NRC Inspection Report 050-00133/09-001

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SUNSI Review Complete: RJE ADAMS: ☒Yes ☐No Initials: RJE☒Publicly Available ☐Non-Publicly Available ☐Sensitive ☒Non-Sensitive

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RJEvans	JEWhitten
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U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket No.: 050-00133

License No.: DPR-7

Report No.: 050-00133/09-001

Licensee: Pacific Gas and Electric Company

Facility: Humboldt Bay Power Plant, Unit 3

Location: 1000 King Salmon Avenue  
Eureka, California 95503

Dates: January 12-15, 2009

Inspector: Robert Evans, PE, CHP, Senior Health Physicist  
Nuclear Materials Safety Branch B

Accompanied By: John Hickman, Project Manager  
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Wade Adams, Project Leader  
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Approved By: Jack E. Whitten, Chief  
Nuclear Materials Safety Branch B

Attachment: Supplemental Inspection Information

ENCLOSURE

## **EXECUTIVE SUMMARY**

### Humboldt Bay Power Plant, Unit 3 NRC Inspection Report 050-00133/09-001

This inspection was a routine, announced inspection of decommissioning activities being conducted at the Humboldt Bay Power Plant, Unit 3 facility. In summary, the licensee was conducting decommissioning activities in compliance with regulatory and license requirements.

#### **Organization, Management, and Cost Controls**

- The organizational structure was in compliance with Quality Assurance Plan requirements. The licensee had sufficient staff for the work in progress (Section 1).

#### **Self-Assessment, Auditing, and Corrective Action**

- The licensee had implemented a Quality Assurance Plan that was in agreement with license requirements. The licensee conducted self-assessment audits in accordance with Quality Assurance Plan requirements (Section 2).

#### **Decommissioning Performance and Status Review**

- The licensee was conducting decommissioning activities with an emphasis on radiological safety. Radiation protection controls had been implemented in accordance with 10 CFR Part 20 requirements (Section 3).
- The licensee was in the process of implementing major changes to its emergency plan, security plan, and operations procedures as allowed by an amendment to the license (Section 3).
- The licensee experienced an incident where a truck driver failed to follow a site procedure, but this incident had minor safety consequences (Section 3).

#### **Inspection of Final Surveys**

- The licensee conducted radiological surveys in the new generation plant footprint in accordance with site instructions. The licensee's results were not available at the end of the onsite inspection and will be reviewed at a later date. The NRC's contractor, Oak Ridge Institute for Science and Education, conducted confirmatory surveys in the same area. The results of these surveys will be presented to the licensee at a later date and under separate correspondence (Section 4).

## **Report Details**

### **Summary of Plant Status**

Humboldt Bay Power Plant (HBPP), Unit 3, is currently in decommissioning SAFSTOR status. Since the previous inspection, the licensee removed the remaining fuel from the spent fuel pool (SFP), and the licensee continued to prepare a portion of the site property for construction of a new electric generating station. The licensee completed the movement of fuel from the Unit 3 SFP to the onsite Independent Spent Fuel Storage Installation (ISFSI) on December 11, 2008. The spent fuel consisted of 390 fuel assemblies or partial fuel assemblies. The fuel was placed into five storage canisters. The licensee plans to place the greater-than-Class-C radioactive wastes into a sixth canister at a later date.

The licensee has been preparing a 19,000 square meter tract of land for construction of a new power generating plant. The licensee recently removed all remaining structures from the area, radiologically surveyed the land, and backfilled the property with imported soil. The licensee plans to begin construction of the new facility in the near future. The licensee also plans to commence with limited decommissioning of equipment located within the Unit 3 turbine-generator structure in the near future.

## **1 Organization, Management, and Cost Controls (36801)**

### **1.1 Inspection Scope**

The inspector reviewed site staffing for compliance with Quality Assurance (QA) Plan requirements.

### **1.2 Observations and Findings**

On December 11, 2008, the licensee completed the transfer of all spent fuel from the SFP to the onsite ISFSI. At that time, the licensee was allowed to implement License Amendment 41, an amendment that was previously approved by the NRC on February 14, 2008. In accordance with License Amendment 41, Technical Specifications Section 5.0, Administrative Controls, was significantly modified. The organizational responsibilities, staff qualifications, and reporting requirements were relocated from Technical Specifications to the QA Plan. The inspector reviewed the updated QA Plan and confirmed that the licensee had transferred the specified program requirements from Technical Specifications to the QA Plan.

As allowed by License Amendment 41, selected organizational requirements, training requirements, and fuel handling procedures were deleted. For example, the licensee is no longer required to maintain the minimum shift crew composition. Also, the licensee is no longer required to maintain certified fuel handlers on shift for routine Unit 3 operational activities.

The current organizational structure requirements are specified in Figures 1 and 2 of the revised QA Plan. The inspector compared the actual organizational structure in place at the time of the inspection to the requirements in the QA Plan. The actual organizational structure agreed with the QA Plan figures, and all staff positions had been filled by the licensee.

In addition to the required positions specified in the QA Plan, the licensee recently established a new position, Project Superintendent. This position provides oversight of the Unit 3 plant operators and various project work supervisors. The inspector concluded that the licensee had sufficient staff for the occupational safety, quality assurance, and health physics work that was in progress at the Unit 3 facility.

### 1.3 Conclusions

The organizational structure was in compliance with QA Plan requirements. The licensee had sufficient staff for the work in progress.

## **2 Self-Assessment, Auditing, and Corrective Action (40801)**

### 2.1 Inspection Scope

The inspector evaluated the effectiveness of the licensee in identifying, resolving, and preventing issues that degrade safety or the quality of decommissioning.

### 2.2 Observations and Findings

At the time of the inspection, the licensee's QA program was being administered by personnel assigned to the Diablo Canyon Power Plant. Although the licensee did not have any full-time QA staff assigned to the HBPP, the licensee continued to administer the QA program as specified in the QA Plan. The licensee conducted the required audits in a timely manner. In addition, the licensee had quality control personnel assigned full-time to the Humboldt Bay site. The inspector concluded that the licensee's QA oversight and quality control staffing arrangement was allowed by the QA Plan.

The inspector reviewed the licensee's implementation of the QA program requirements for conducting audits. The QA Plan and the QA Manual specified the program areas that were required to be audited. The licensee maintained an audit matrix to specify the program areas and the required audit frequencies. The Group Master Internal & External Audit & Review Schedule was maintained by QA staff at Diablo Canyon Power Plant, but this schedule included the audits being conducted at HBPP. The inspector confirmed that all audits required to be conducted at HBPP had been conducted, or were scheduled to be conducted in a timely manner.

The inspector reviewed four audits including the audits for the radiation protection, security, corrective action, and license compliance programs. The audits were determined to be comprehensive. No significant audit findings were identified by the auditors. The deficiencies that were identified by the auditors were included in the licensee's corrective action program for resolution.

### 2.3 Conclusions

The licensee had implemented a QA Plan that was in agreement with license requirements. The licensee conducted self-assessment audits in accordance with QA Plan requirements.



### **3 Decommissioning Performance and Status Review (71801)**

#### **3.1 Inspection Scope**

The inspector evaluated whether the licensee and its contracted workforce were conducting decommissioning activities in accordance with license and regulatory requirements.

#### **3.2 Observations and Findings**

##### **a. Site Tours**

The inspector toured the fuel handling building, Unit 3 control room, and other areas of the facility. Radiological postings were clearly visible, and the postings met the requirements of 10 CFR Part 20. Housekeeping was being controlled in the radiologically restricted areas. During the site tours, the inspector conducted radiological surveys to verify the accuracy of radiation area postings. The inspector did not identify any radiation area that was incorrectly posted by the licensee.

##### **b. Program Changes Implemented as a Result of Removal of Fuel from SFP**

The inspector conducted a review of the program changes that were being implemented by the licensee in response to the permanent removal of spent fuel from the SFP. During the inspection, the licensee was in the process of implementing License Amendment 41. This amendment allowed the licensee to delete or downgrade a number of program areas. For example, the licensee is no longer required to monitor and maintain SFP water level to meet Technical Specification requirements. Further, the licensee was allowed to implement a reduction in the Emergency Plan. The licensee also eliminated the Security Plan for Unit 3 as allowed by Amendment 43 to the license. Finally, two security-related Orders were rescinded by the NRC during December 2008.

During the inspection period, the licensee was in the process of implementing major changes to the Defueled Safety Analysis Report (DSAR) to eliminate a number of unnecessary requirements. The requirement to monitor SFP water chemistry was eliminated from the DSAR and was relocated to site procedures. The DSAR requirement for three in-plant area radiation monitors was also removed. Although these monitors were still in service during the inspection, the licensee plans to remove the monitors from service in the near future. Further, the gaseous effluent monitor, controlled by the Offsite Dose Calculation Manual, will be downgraded to a particulate sampler only. However, the liquid radwaste monitor will remain in service. Selected operational support equipment will remain in service including plant ventilation systems and process fluid tanks.

The licensee will continue to maintain the SFP liner water level requirements specified in Technical Specifications because this limitation helps minimize the potential for release of contaminated water to the environment. The inspector verified that the liner water level was still being monitored by the licensee as required by Technical Specifications. During the inspection, the liner water level was found to be within the limits specified in Technical Specification.

c. Follow-up of Site Incident

The inspector conducted a follow-up review of a incident involving a truck driver who failed to follow a site procedure. On November 25, 2008, the licensee was in the process of free-releasing soils from the new generation plant area. The excavated material was being shipped by truck to a local landfill. By procedure, the trucks departing the site were required to be radiologically surveyed to ensure that the radiation levels of the load were indistinguishable from background levels. This check was necessary to ensure that the load would not activate the portal monitors at the disposal site. (The surveys were not being conducted to fulfill U.S. Department of Transportation shipping requirements.) However, one truck driver elected to leave the site without completion of the final survey, contrary to the requirements of a site procedure.

When the health physics staff became aware that the driver had left the site, the licensee contacted the dispatcher who ordered the truck back to the site. Upon return to the site, the truck was still loaded with the soil material. Health physics staff subsequently conducted the survey in accordance with the site procedure and released the truck and soil material.

The cause of the event was attributed to human error. Corrective actions taken by the licensee included barring the driver from the site. In addition, the trucking company indicated that it would discipline the driver. After the incident, the site quality control supervisor conducted an independent review of the truck release program. The audit concluded that the truck screening and release program was being conducted in accordance with site procedures.

The inspector confirmed that the truck driver was not a radiation worker; therefore, the driver had not attended detailed radiation worker training as specified in 10 CFR Part 19 and may not have been aware of his responsibilities with regard to licensed activities. Although the driver failed to follow site procedures, the inspector determined that the violation had minor radiological safety consequences. In addition, the licensee identified the problem and took immediate corrective actions. Accordingly, this failure constitutes a violation of minor significance and is not subject to formal enforcement action.

3.3 Conclusions

The licensee was conducting decommissioning activities with an emphasis on radiological safety. Radiation protection controls had been implemented in accordance with 10 CFR Part 20 requirements. The licensee was in the process of implementing major changes to its emergency plan, security plan, and operations procedures as allowed by an amendment to the license. The licensee experienced an incident where a truck driver failed to follow a site procedure, but this incident had minor safety consequences.

**4 Inspection of Final Surveys (83801)**

4.1 Inspection Scope

The inspector verified that radiological surveys were being conducted by the licensee in accordance with site procedures and NRC guidance documents.

## 4.2 Observations and Findings

In recent months, the licensee has been preparing a tract of land located adjacent to Unit 3 for construction of new power generating equipment. Although the licensee is not free-releasing the area from the license, License Condition 2.C.4 allows the licensee to conduct radiological surveys of the new generation area. During the inspection, the inspector conducted a review of the licensee's survey activities in the new generation area. In addition, representatives from Oak Ridge Institute for Science and Education (ORISE) conducted a confirmatory survey in the new generation area on behalf of the NRC.

As part of the repowering project, the licensee demolished several structures located within the new generation area. The inspector reviewed the pre-demolition survey results for the warehouse, paint shop, and a large concrete pad that were previously located in this area. The pre-demolition surveys were conducted during early October 2008. The documentation reviewed indicates that the survey results were essentially indistinguishable from background levels. Following the completion of the surveys, these structures were demolished and removed from the area.

At the time of the inspection, the new generation area consisted of open land with no structures. The licensee had recently backfilled and compacted the area with soils from offsite locations. During the inspection period, the licensee began conducting a final radiological survey of the new generation area. The purpose of the survey was to determine the radiological status of the grounds that will be used as foundation for the new generation plant. These areas will be inaccessible for final surveying in the future. In addition, the licensee was collecting survey data for implementation of the cross-contamination prevention and monitoring program. This program will have to be implemented by the licensee to ensure that cross-contamination does not occur during future decommissioning activities.

According to the historical site assessment, the primary radionuclide of concern was cesium-137. The licensee's characterization survey consisted of soil sampling and ambient gamma radiation scanning. The licensee elected to use the NRC's screening value, 11 picocuries per gram, for cesium-137 in soil. Because the NRC has not approved a background value for cesium-137 in soil, the licensee was expected to compare the gross sample results to the screening value.

The new generation plant footprint area consisted of two Class 3 survey units. The survey unit classification, Class 3, was determined using guidance provided in NUREG-1575, Revision 1, Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). The eastern survey unit consisted of about 10,000 square meters of land, while the western survey unit consisted of about 8,820 square meters of land. The licensee planned to collect 14 soil samples in each of the two survey units. The licensee planned to have these soil samples analyzed by an out-of-state laboratory.

In addition to soil sampling, the licensee planned to conduct measurement of ambient gamma radiation levels during walk-over surveys of the land surfaces. The licensee planned to scan a minimum of 10-percent of the survey areas, although MARSSIM does not specify a percentage requirement for Class 3 outdoor areas.

The inspector conducted a review of the site characterization procedure and observed the performance of portions of the licensee's scan surveys and soil sampling. The surveys were being conducted in accordance with procedure requirements. Good control of health physics activities and oversight of personnel safety were exhibited in the work area. The licensee's final characterization survey results were not available at the end of the inspection and will be reviewed during a future inspection.

In addition to the licensee's survey, representatives from ORISE conducted a confirmatory survey of the new generation area on behalf of the NRC. The survey consisted of measurement of ambient gamma radiation exposure rate levels and collection of soil samples. The ORISE representatives scanned about half of the land located within the two survey units. The ORISE representatives collected a number of soil samples for analysis at their laboratory in Oak Ridge, Tennessee. The soil samples included six rank-set samples, four split samples, and seven native soil samples.

In addition to the soil samples collected from the new generation area, ORISE collected two soil samples from a large soil stockpile of soil located adjacent to the radiologically restricted area. The licensee planned to redistribute these soils around the site, and the inspector wanted to sample the soil before the stockpile was permanently moved.

At the end of the inspection period, ORISE's sample results were not available for review. These sample results will be reviewed by the NRC at a later date.

#### 4.3 Conclusions

The licensee conducted radiological surveys in the new generation plant footprint in accordance with site instructions. The licensee's results were not available at the end of the onsite inspection and will be reviewed at a later date. The NRC's contractor, ORISE, conducted confirmatory surveys in the same area. The results of these surveys will be presented to the licensee at a later date and under separate correspondence.

### 5 **Exit Meeting**

The inspector reviewed the scope and findings of the inspection during an exit meeting that was conducted at the conclusion of the onsite inspection on January 15, 2009. The licensee did not identify as proprietary any information provided to, or reviewed, by the inspector.

## **SUPPLEMENTAL INSPECTION INFORMATION**

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### **INSPECTION PROCEDURES USED**

IP 36801	Organization, Management, and Cost Controls
IP 40801	Self-Assessment, Auditing, and Corrective Action
IP 71801	Decommissioning Status
IP 83801	Inspections of Remedial and Final Surveys

### **ITEMS OPENED, CLOSED, AND DISCUSSED**

#### Opened

None

#### Closed

None

#### Discussed

None

## **LIST OF ACRONYMS**

CFR	Code of Federal Regulations
DSAR	Defueled Safety Analysis Report
HBPP	Humboldt Bay Power Plant
IP	Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual (NUREG-1575)
ORISE	Oak Ridge Institute for Science and Education
QA	Quality Assurance
SFP	Spent Fuel Pool